

Grizzly *Industrial, Inc.*®

MODEL H6231Z 10-TON BENCHTOP SHOP PRESS OWNER'S MANUAL



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**WARNING: NO PORTION OF THIS MANUAL MAY BE REPRODUCED IN ANY SHAPE
OR FORM WITHOUT THE WRITTEN APPROVAL OF GRIZZLY INDUSTRIAL, INC.**
FOR MODELS MANUFACTURED SINCE 1/10 #CR12507 PRINTED IN CHINA

 **WARNING!**

This manual provides critical safety instructions on the proper setup, operation, maintenance and service of this machine/equipment.

Failure to read, understand and follow the instructions given in this manual may result in serious personal injury, including amputation, electrocution or death.

The owner of this machine/equipment is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, blade/cutter integrity, and the usage of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.

 **WARNING!**

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- **Lead from lead-based paints.**
- **Crystalline silica from bricks, cement and other masonry products.**
- **Arsenic and chromium from chemically-treated lumber.**

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

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INTRODUCTION

Manual Accuracy

We are proud to offer this document with your new machine! We've made every effort to be exact with the instructions, specifications, drawings, and photographs of the machine we used when writing this manual. However, sometimes we still make an occasional mistake.

Also, owing to our policy of continuous improvement, **your machine may not exactly match the manual.** If you find this to be the case, and the difference between the manual and machine leaves you in doubt, immediately call our technical support for updates or clarification.

For your convenience, we post all available documentation on our website at **www.grizzly.com**. Any updates to this document will be reflected on our website as soon as complete.

Contact Info

We stand behind our machines. If you have any service questions, parts requests or general questions about the machine, please call or write us at the location listed below.

Grizzly Industrial, Inc.
1203 Lycoming Mall Circle
Muncy, PA 17756
Phone: (570) 546-9663
E-Mail: techsupport@grizzly.com

We want your feedback on this manual. If you can take the time, please email or write to us at the address below and tell us how we did:

Grizzly Industrial, Inc.
c/o Technical Documentation Manager
P.O. Box 2069
Bellingham, WA 98227-2069
Email: manuals@grizzly.com



MACHINE DATA SHEET

Customer Service #: (570) 546-9663 • To Order Call: (800) 523-4777 • Fax #: (800) 438-5901

MODEL H6231Z 10-TON SHOP PRESS

Ram Maximum Applied Force	20,000 lbs (10 tons)
Ram Maximum Stroke	5 ⁵ / ₁₆ "
Pressure Gauge Convention.....	Metric Tons and US Tons
Ram Diameter.....	2"
Working Distance at Lowest Table Position	16 ³ / ₄ "
Working Distance at Highest Table Position	9 ³ / ₄ "
Bed Support Bar Diameter.....	5 ⁵ / ₈ "
Number of Bed Adjustment Holes	3 holes
Bed Adjustment Hole Spacing	3 ⁹ / ₁₆ " On-Center
Overall Dimensions.....	23 ¹ / ₂ "W x 19 ³ / ₄ "D x 45"H
Arbor Plate Set Included.....	Yes
Hydraulic Fluid Type	Standard Hydraulic Jack Oil
Shipping Weight.....	96 lbs.



Identification

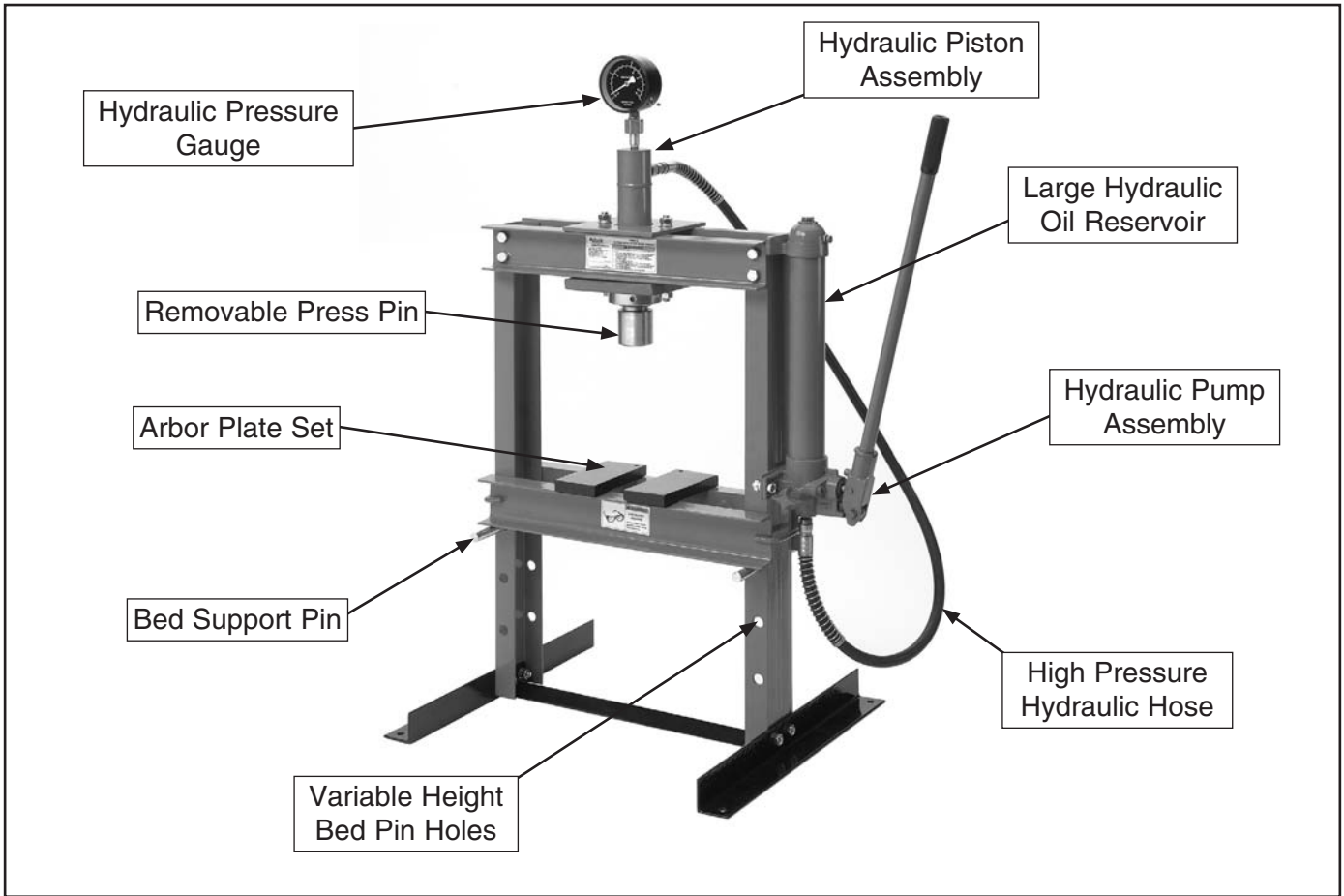
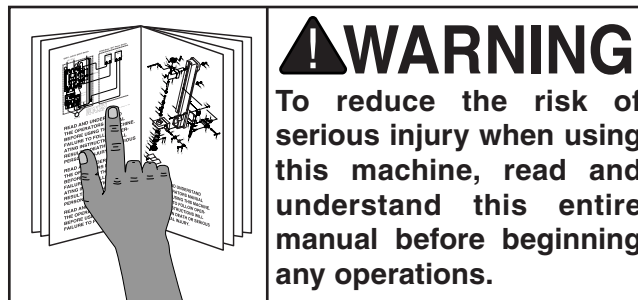


Figure 1. Identification.




SECTION 1: SAFETY


WARNING

For Your Own Safety, Read Instruction Manual Before Operating this Machine

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures.

 **DANGER** Indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.

 **WARNING** Indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.

 **CAUTION** Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE This symbol is used to alert the user to useful information about proper operation of the machine.

WARNING

Safety Instructions for Machinery

- 1. READ ENTIRE MANUAL BEFORE STARTING.** Operating machine before reading the manual greatly increases the risk of injury.
- 2. ALWAYS USE ANSI APPROVED SAFETY GLASSES WHEN OPERATING MACHINERY.** Everyday eyeglasses only have impact resistant lenses—they are NOT safety glasses.
- 3. ALWAYS WEAR A NIOSH APPROVED RESPIRATOR WHEN OPERATING MACHINERY THAT PRODUCES DUST.** Most types of dust (wood, metal, etc.) can cause severe respiratory illnesses.
- 4. ALWAYS USE HEARING PROTECTION WHEN OPERATING MACHINERY.** Machinery noise can cause permanent hearing loss.
- 5. WEAR PROPER APPAREL. DO NOT** wear loose clothing, gloves, neckties, rings, or jewelry that can catch in moving parts. Wear protective hair covering to contain long hair and wear non-slip footwear.
- 6. NEVER OPERATE MACHINERY WHEN TIRED OR UNDER THE INFLUENCE OF DRUGS OR ALCOHOL.** Be mentally alert at all times when running machinery.



WARNING

Safety Instructions for Machinery

7. **ONLY ALLOW TRAINED AND PROPERLY SUPERVISED PERSONNEL TO OPERATE MACHINERY.** Make sure operation instructions are safe and clearly understood.
8. **KEEP CHILDREN/VISITORS AWAY.** Keep all children and visitors away from machinery. When machine is not in use, disconnect it from power, lock it out, or disable the switch to make it difficult for unauthorized people to start the machine.
9. **UNATTENDED OPERATION.** Leaving machine unattended while its running greatly increases the risk of an accident or property damage. Turn machine **OFF** and allow all moving parts to come to a complete stop before walking away.
10. **DO NOT USE IN DANGEROUS ENVIRONMENTS.** DO NOT use machinery in damp, wet locations, or where any flammable or noxious fumes may exist.
11. **KEEP WORK AREA CLEAN AND WELL LIGHTED.** Clutter and dark shadows may cause accidents.
12. **USE A GROUNDED POWER SUPPLY RATED FOR THE MACHINE AMPERAGE.** Grounded cords minimize shock hazards. Operating machine on an incorrect size of circuit increases risk of fire.
13. **ALWAYS DISCONNECT FROM POWER SOURCE BEFORE SERVICING MACHINERY.** Make sure switch is in OFF position before reconnecting.
14. **MAINTAIN MACHINERY WITH CARE.** Keep blades sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
15. **MAKE SURE GUARDS ARE IN PLACE AND WORK CORRECTLY BEFORE USING MACHINERY.**
16. **REMOVE CHUCK KEYS OR ADJUSTING TOOLS.** Make a habit of never leaving chuck keys or other adjustment tools in/on the machine—especially near spindles!
17. **DAMAGED MACHINERY.** Check for binding or misaligned parts, broken parts, loose bolts, other conditions that may impair machine operation. Always repair or replace damaged parts before operation.
18. **DO NOT FORCE MACHINERY.** Work at the speed for which the machine or accessory was designed.
19. **SECURE WORKPIECE.** Use clamps or a vise to hold the workpiece when practical. A secured workpiece protects your hands and frees both hands to operate the machine.
20. **DO NOT OVERREACH.** Maintain stability and balance at all times when operating machine.
21. **MANY MACHINES CAN EJECT WORKPIECES TOWARD OPERATOR.** Know and avoid conditions that cause the workpiece to "kickback."
22. **STABLE MACHINE.** Machines that move during operations greatly increase the risk of injury and loss of control. Verify machines are stable/secure and mobile bases (if used) are locked before starting.
23. **CERTAIN DUST MAY BE HAZARDOUS** to the respiratory systems of people and animals, especially fine dust. Be aware of the type of dust you are exposed to and always wear a respirator designed to filter that type of dust.
24. **EXPERIENCING DIFFICULTIES.** If at any time you are experiencing difficulties performing the intended operation, stop using the machine! Contact our Technical Support Department at (570) 546-9663.



WARNING

Additional Safety for Hydraulic Presses

- 1. AVOIDING OVERLOAD.** Exceeding rated press capacity can damage the press, shatter a workpiece, or launch a press pin causing a severe impact injury. When the press has reached its maximum pressure or the pump lever becomes stiff to operate, the press has reached its limit. Never use a cheater pipe for extra leverage.
- 2. OPERATION SAFETY.** Applying pressure to parts with this press can cause them to spring out and strike you or bystanders with deadly force. Verify that bystanders are a safe distance away from the press during operations. Make sure that you are wearing gloves and safety glasses with a face shield. Heavy leather boots with extra toe protection are also required. Under some conditions, a hard hat may be needed.
- 3. CORRECT INSTALLATION.** An unsecured press on wheels can tip when being moved or exhibit severe spring-back during heavy pressing operations, which could cause a crushing or impact injury. Do not place the press on a mobile base or install casters. The press base must be bolted to the workbench.
- 4. PRE-USE INSPECTIONS.** A loose press frame can cock under a load and cause the workpiece to shift or eject, resulting in an impact injury. Before use, inspect the press for loose or missing bolts and pins. Verify that no cracks exist and that the hydraulic system is in full working order.
- 5. WORKPIECE SUPPORT.** When a part is pressed free, a workpiece may shift suddenly or fall from the press, causing a crushing injury to your foot or leg. Use a catch basket and support long or awkward workpieces with stands or chains, or have an assistant support the end of a long workpiece during pressing operations.
- 6. UNSAFE WORKPIECE.** Applying pressure to unstable objects can cause the object to eject, causing an impact injury. Never apply pressure to balls, round objects, springs, or elastic items.
- 7. AVOIDING PROJECTILE INJURIES.** Being hit by a launched workpiece or press tooling can cause severe impact injury or death. When using the press, stand out of the way of any possible projectile path. Never press with rods or pins that are long enough to shift off-center and kick out under a load. Never stack rods and spacers to create an extended press pin. If pressing must occur with an extended press pin, the pin must be fastened with a safety chain or the press pin must be enclosed in a safety cage to eliminate a projectile hazard.
- 8. CORRECT TOOLING.** Without using the correct spring caging tool or jig to hold the spring-loaded workpiece, the workpiece may shift suddenly, launching springs that could cause a severe impact injury. Never use this press to unload spring-loaded assemblies without also using the correct spring caging tool or jig.
- 9. CORRECTING MISALIGNED LOADS.** If a workpiece becomes misaligned during pressing operations, it may slip out of the press and cause severe impact injury. Never attempt to realign a workpiece while it is under pressure. Relieve hydraulic pressure, and start pressing operations over if a workpiece or press pin has moved or become misaligned. Relieve hydraulic pressure if you suspect the workpiece is in a bind, or structural failure is imminent.



10. SAFE WORKING ZONE. Falling tooling, arbor plates, or a shifting workpiece can cause a crushing injury to your leg or foot. Keep out from under the bed, do not work under the press when it is loaded, and never leave the press loaded and unattended.

11. AVOIDING INCORRECT PRESS OPERATIONS. Some workpieces cannot withstand the force of pressing and can explode, causing an impact injury. Other workpieces have hidden retaining rings, shoulders, pins, welds, or are integral and cannot be pressed apart. Before using this press, make sure that you understand how a component is built and pressed apart.

12. SAFE HYDRAULIC REPAIR. Repair that is performed by an unqualified person can lead to press overload and line burst where hydraulic oil is injected into your blood stream resulting in blood poisoning. Do not attempt to repair the hydraulic system or adjust the pressure relief valve unless you are a qualified hydraulic service professional.

13. AVOIDING HYDRAULIC POISONING. Hydraulic fluid reaches extremely high pressures and can cause blood poisoning if injected into your blood stream. Never remove any hydraulic line, fitting, or component, or attempt to check for leaks in lines with your hands or fingers while the system is under pressure.

14. AVOIDING SPRING-BACK HAZARDS. Under heavy pressing operations, when some parts finally break free of the host workpiece, sudden hydraulic press unloading can result in spring-back. As a result, a workpiece, press pin, or arbor plate can spring up and fall from the bed, causing a crushing injury to your foot or leg. Before press operations begin, anticipate what the workpiece may do if this sudden unloading occurs, and secure the workpiece so it will not fall.

15. UNAUTHORIZED MODIFICATION. Modifying the press frame, increasing pump relief pressure, installing non-hydraulic hoses or fittings, or outright adding a higher capacity piston or pump can cause structural failure and lead to a severe crushing injury. If the press is insufficient for your pressing task, use a press that is rated for the correct load capacity.

WARNING

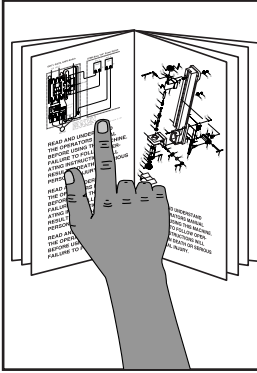
Like all machinery there is potential danger when operating this machine. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this machine with respect and caution to decrease the risk of operator injury. If normal safety precautions are overlooked or ignored, serious personal injury may occur.

CAUTION

No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment, or poor work results.

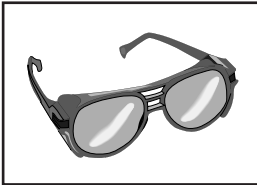


SECTION 2: SETUP



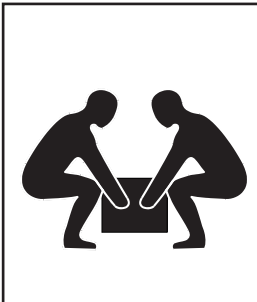
!WARNING

This machine presents serious injury hazards to untrained users. Read through this entire manual to become familiar with the controls and operations before using the machine!



!WARNING

Wear safety glasses during the entire setup process!



!WARNING

This machine and its components are very heavy. Get lifting help or use power lifting equipment such as a forklift to move heavy items.

Needed for Setup

The following items are needed to complete the setup process, but are not included with your machine.

Description	Qty
• Safety Glasses	1
• Disposable Shop Rags.....	As Needed
• Open-End Wrench 14mm.....	1
• Open-End Wrench 16mm.....	1
• Open-End Wrench 17mm.....	1
• Open-End Wrench 18mm.....	1
• Open-End Wrench 19mm.....	1
• Pin-Type Spanner Wrench (1/4" Pin) or Hammer and 1/4" Drift Punch	1

Unpacking

Your machine was carefully packaged for safe transportation. Remove the packaging materials from around your machine and inspect it. If you discover the machine is damaged, *please immediately call Customer Service at (570) 546-9663 for advice.*

Save the containers and all packing materials for possible inspection by the carrier or its agent. *Otherwise, filing a freight claim can be difficult.*

When you are completely satisfied with the condition of your shipment, inventory the contents.



Inventory

The following is a description of the main components shipped with your machine. Lay the components out to inventory them.

Note: If you can't find an item on this list, check the mounting location on the machine or examine the packaging materials carefully. Occasionally we pre-install certain components for shipping purposes.

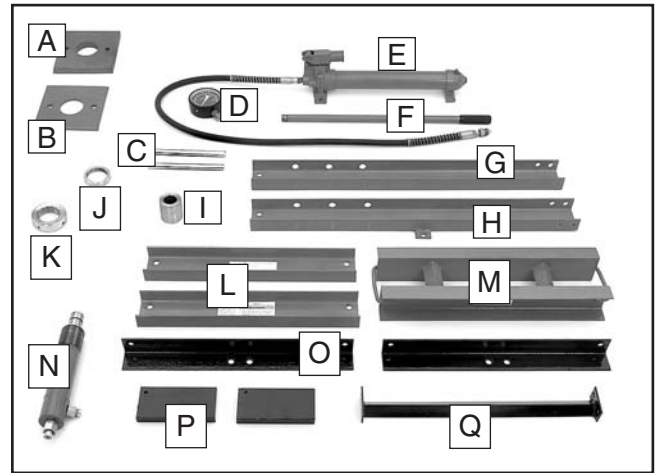


Figure 2. Main inventory.

Description	Qty
A. Lower Support Plate 20mm Thick.....	1
B. Upper Support Plate 8mm Thick.....	1
C. Bed Support Pins.....	2
D. Pressure Gauge.....	1
E. Hydraulic Pump 10-ton.....	1
F. Pump Lever.....	1
G. U-Beam.....	1
H. U-Beam w/Pump Mount.....	1
I. Press Pin.....	1
J. Upper Spanner Ring 15mm Thick.....	1
K. Lower Spanner Ring 25mm Thick.....	1
L. Upper U-Beams.....	2
M. Bed.....	1
N. Hydraulic Ram 10-ton.....	1
O. Base Rails.....	2
P. Arbor Plates.....	2
Q. Base Cross Support.....	1

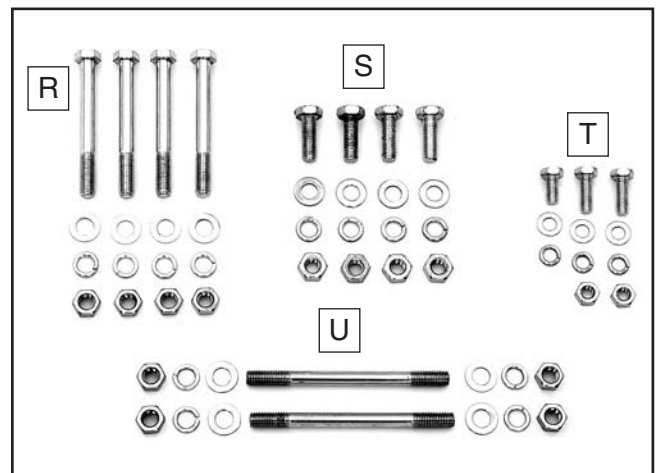



Figure 3. Fastener Inventory.

Hardware	Qty
R. Hex Bolts M12-1.75 x 110 C8.8 (Upper U-beams).....	4
Hex Nuts M12-1.75 (Upper U-beams).....	4
Flat Washers 12mm (Upper U-beams).....	4
Lock Washers 12mm (Upper U-beams).....	4
S. Hex Bolts M12-1.75 x 30 (Base Rails).....	4
Hex Nuts M12-1.75 (Base Rails).....	4
Flat Washers 12mm (Base Rails).....	4
Lock Washers 12mm (Base Rails).....	4
T. Hex Bolt M8-1.25 x 25 (Pump Mounting) ...	2
Hex Bolt M8-1.25 x 16 (Pump Mounting)....	1
Hex Nuts M8-1.25 (Pump Mounting).....	2
Flat Washers 8mm (Pump Mounting).....	3
Lock Washers 8mm (Pump Mounting).....	3
U. Studs M12-1.75 x 150 (Support Plates).....	2
Hex Nuts M12-1.75 (Support Plates).....	4
Flat Washers 12mm (Support Plates).....	4
Lock Washers 12mm (Support Plates).....	4

If any nonproprietary parts are missing (e.g. a nut or a washer), we will gladly replace them; or for the sake of expediency, replacements can be obtained at your local hardware store.



!WARNING

SUFFOCATION HAZARD!

Immediately discard all plastic bags and packing materials to eliminate choking/suffocation hazards for children and animals.



Site Considerations

Physical Environment

The physical environment where your machine is operated is important for safe operation and the longevity of its components. For best results, operate this machine in a dry environment that is free from excessive moisture, hazardous chemicals, airborne abrasives, or extreme conditions. Extreme conditions for this type of machinery are generally those where the ambient temperature range exceeds 41°–104°F; the relative humidity range exceeds 20–95% (non-condensing); or the environment is subject to vibration, shocks, or bumps.

Space Allocation

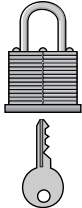
Consider the largest size of workpiece that will be processed through this machine and provide enough space around the machine for adequate operator material handling or the installation of auxiliary equipment. With permanent installations, leave enough space around the machine to open or remove doors/covers as required by the maintenance and service described in this manual. **See below for required space allocation.**

Weight Load

Refer to the **Machine Data Sheet** for the weight of your machine. Make sure that the surface upon which the machine is placed will bear the weight of the machine, additional equipment that may be installed on the machine, and the heaviest workpiece that will be used. Additionally, consider the weight of the operator and any dynamic loading that may occur when operating the machine.

Lighting

Lighting around the machine must be adequate enough that operations can be performed safely. Shadows, glare, or strobe effects that may distract or impede the operator must be eliminated.

	<p>⚠ CAUTION Children or untrained people may be seriously injured by this machine. Only install in an access restricted location.</p>
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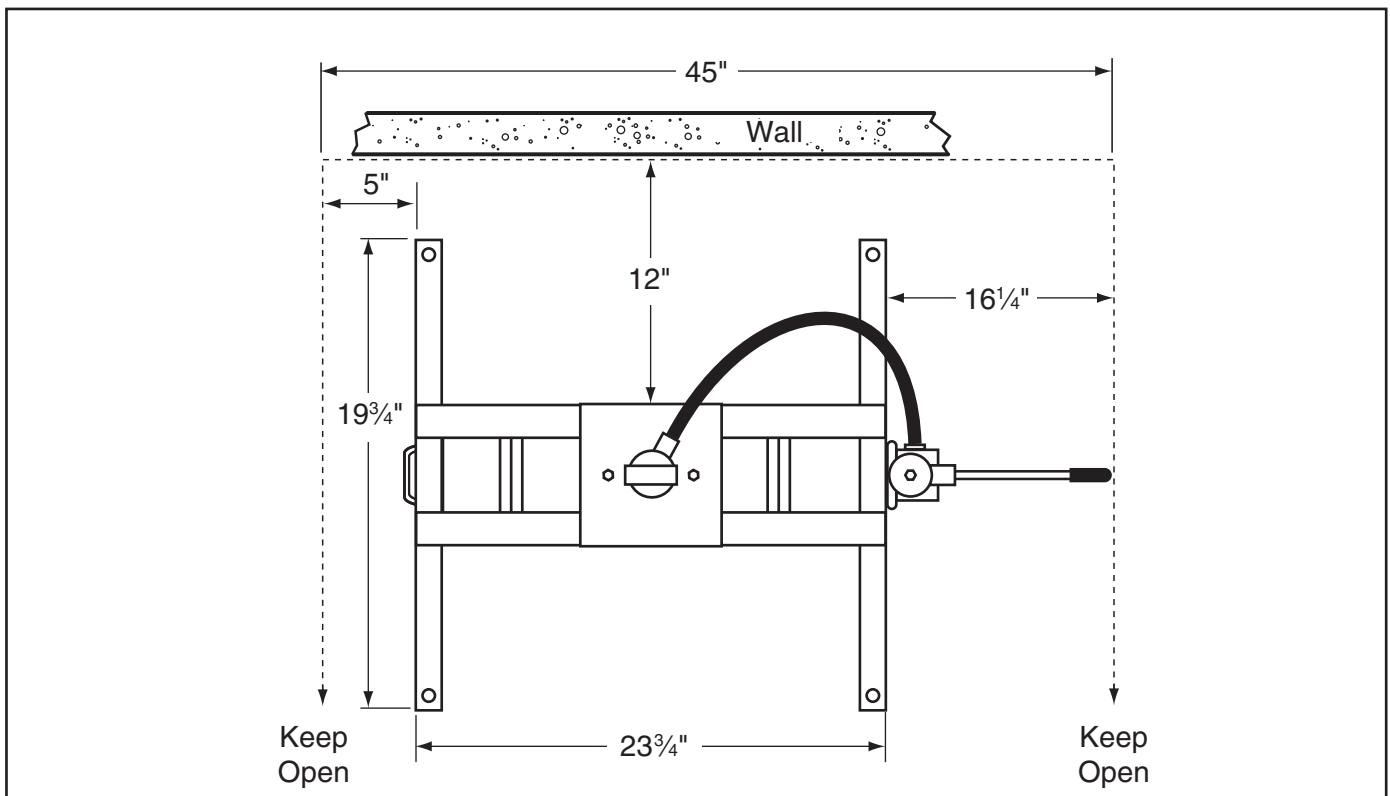


Figure 4. Minimum working clearances.



Assembly

To assemble your press:

1. Put on safety glasses and heavy leather boots.
2. Place both U-beams parallel on the floor so the flanges are facing one another and both beams have their row of pin holes at the same end, as shown in **Figure 7**.

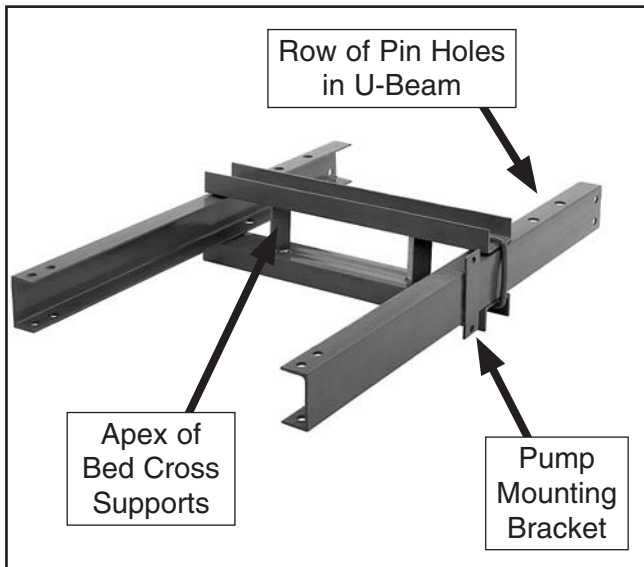


Figure 7. Bed installation.

3. Orient the bed so the apex of the cross supports are pointing toward the top end of the U-beams and slide the bed onto the beams.

Make sure that the bed is positioned below the pump mounting bracket on the end of the rails where the rows of pin holes are located, as shown in **Figure 7**.

4. Using a 17mm wrench, attach the base rails and cross support to the U-beams with four M12-1.75 x 30 hex bolts and four 12mm flat washers, lock washers, and hex nuts, as shown in **Figure 8**.

Note: Make sure to position the apex of the base cross support towards the bed as shown in **Figure 8**.

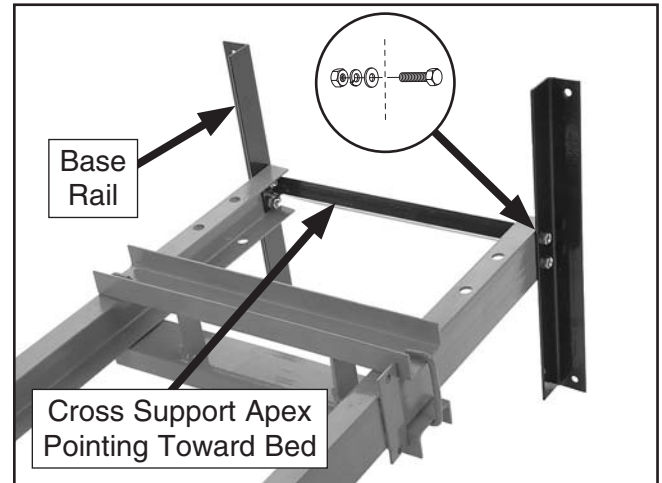


Figure 8. Base cross support installation.

5. Slide the bed against the base rails to prevent it from suddenly sliding to the base, and carefully tilt the press upright on its base.
6. Install the upper U-beams with one M12-1.75 x 110 hex bolt and finger-tighten with a 12mm flat washer, lock washer, and hex nut, as shown in **Figure 9**.

Note: This bolt will allow you to easily hinge the U-beams in place for the rest of the fasteners.

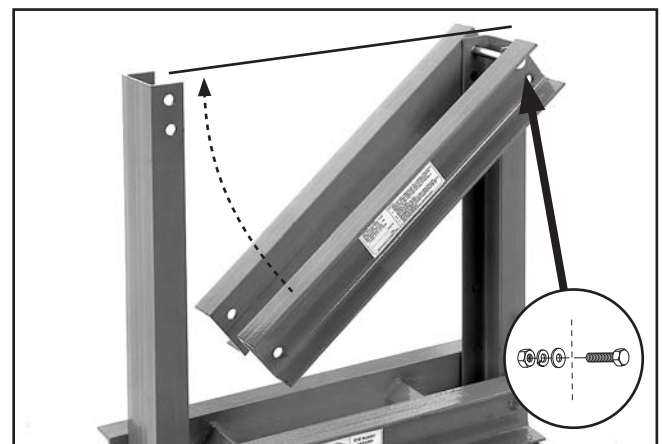


Figure 9. Upper U-beam installation.



- Swing the U-beams upward into alignment with the mounting holes, and install the remaining three M12-1.75 x 110 hex bolts with 12mm flat washers, lock washers, and hex nuts, as shown in **Figure 10**.

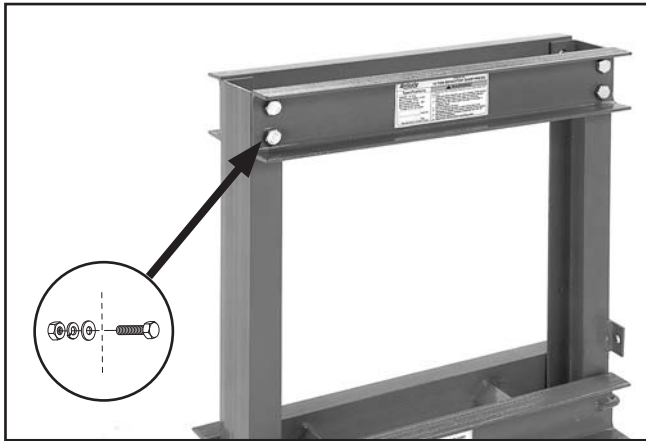


Figure 10. Upper U-beam installation.

- Using an 18mm wrench, tighten all of the upper U-beam fasteners.
- Install the 8mm and 20mm thick support plates at the center upper U-beams, using a 19mm wrench and the two M12-1.75 studs, four 12mm flat washers, lock washers, and hex nuts as shown in **Figure 11**.

Make sure that when you are finished equal amount of threads protrude from the upper and lower hex nuts.

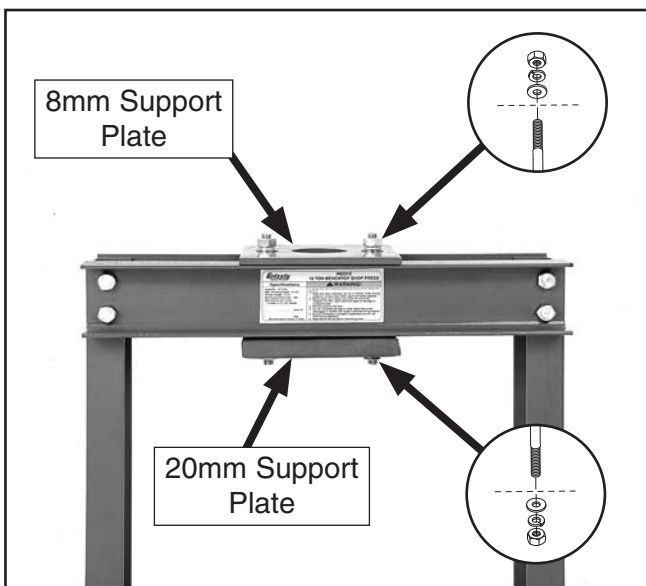


Figure 11. Support plate installation.

- Remove the threaded spanner rings and the press pin from the piston, and lay them out on the workbench, as shown in **Figure 12**.

Note: The press pin is locked onto the ram piston with a spring that is seated in the piston. Removal is done by just pulling on the press pin.

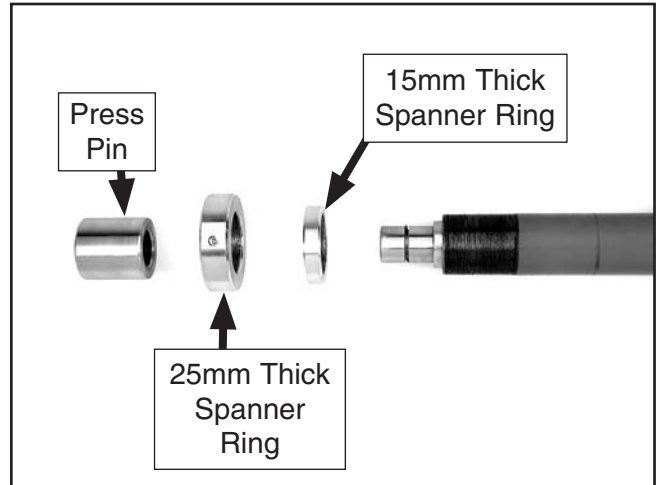


Figure 12. Spanner ring removal.

- Position the 15mm spanner ring on top of the lower support plate, and install the piston assembly through the top of the support plate holes, as shown in **Figure 13**.

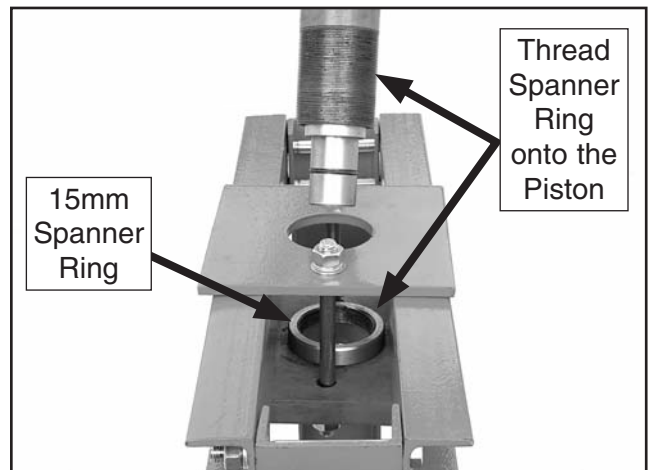


Figure 13. Piston installation.

- Make sure that the thin 15mm spanner nut shown in **Figure 13** is threaded onto the piston housing completely. Otherwise, there will not be enough thread exposed for the thicker load-carrying spanner ring below. The 25mm spanner ring must have full thread engagement as this ring is the only support for the piston during all press operations.



- Thread the 25mm spanner ring onto the piston housing as shown in **Figure 14** until it is tight. Then install the press pin onto the piston ram.

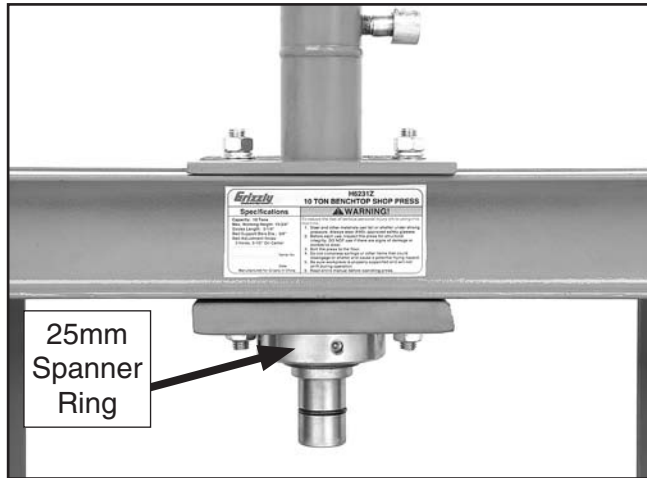


Figure 14. Spanner ring installation.

- Wearing safety glasses, use a spanner wrench (or a hammer and a 1/4" drift punch) finish tightening the 25mm spanner ring an additional 1/8 turn.
- Attach the hydraulic pump to the lower pump bracket with the two M8-1.25 x 25 hex bolts, two 8mm flat washers, lock washers and hex nuts, as shown in **Figure 15**.

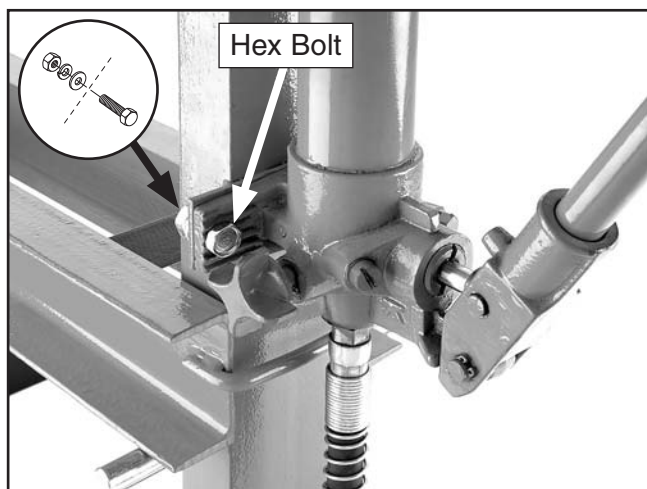


Figure 15. Pump installation.

- Place one 8mm lock washer and flat washer onto the M8-1.25 x 16 hex bolt, and insert it through the U-beam and tighten it into the upper pump mounting bracket.

- Remove the plastic caps and connect the pressure gauge to the top of the piston housing with a 16mm and 27mm wrench. Do not use Teflon tape or thread sealant of any kind on this type of fitting, as it employs the sealing ring shown in **Figure 16**.



Figure 16. Hydraulic line installation.

- Remove the plastic caps, connect the pressure line to the piston housing, and thread the knurled nut onto the self-sealing hydraulic fitting. Do not use Teflon tape or thread sealant of any kind on this type of fitting, as it employs a self-sealing design (see **Figure 17**).

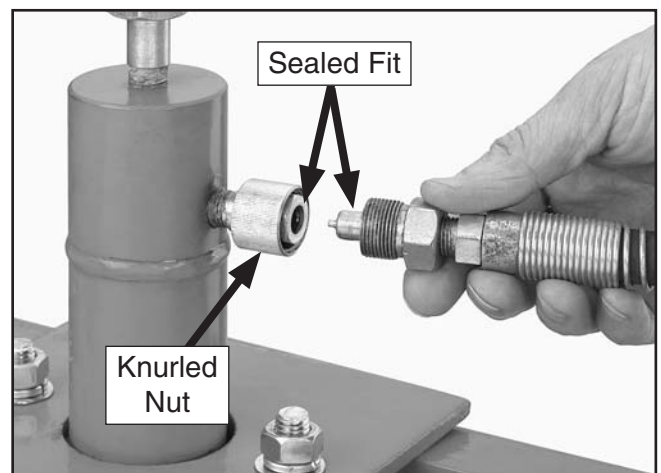


Figure 17. Hydraulic line installation.



19. With the help of another person, position the press on the workbench where you want to mount it.
20. Based on your choice of fasteners discussed under **Mounting**, use the pre drilled holes in the base rails as a guide to drill and mount your press to the workbench.
21. Position the bed on the bed support pins, and place the arbor plates on the bed, as shown in **Figure 18**.

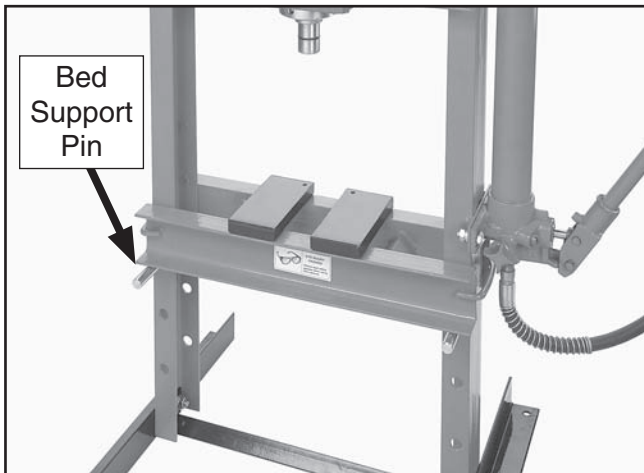


Figure 18. Typical arbor plate positioning.

22. Completely un-thread the reservoir breather shown in **Figure 19** and leave it open. This valve is closed so the hydraulic fluid is not lost during shipping.

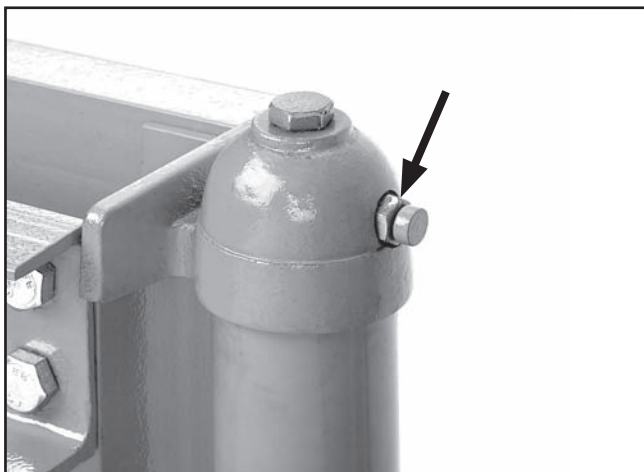


Figure 19. Breather fitting.

23. Go to the **Maintenance** section on **Page 20** and bleed the hydraulic system as outlined.

Mounting

The base of this press has holes that allow it to be mounted to a workbench. We strongly recommend that you mount your press to a workbench to prevent it from moving during operation. An unexpected movement could result in an injury or property damage.

The strongest mounting option is a "Through Mount" where holes are drilled all the way through the workbench, and hex bolts, washers, and hex nuts are used to secure the press to the workbench.

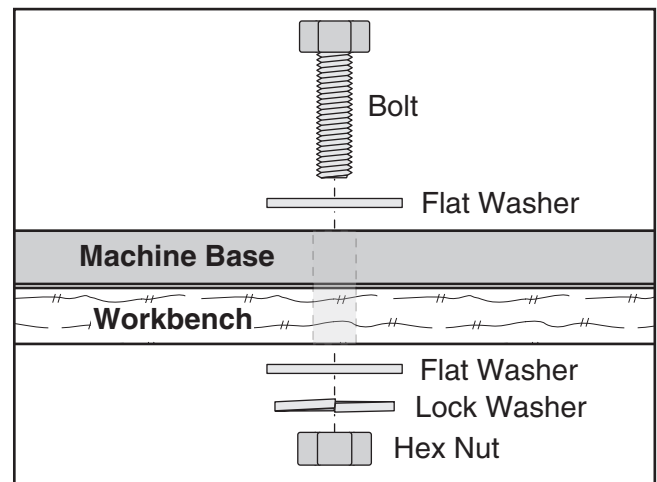


Figure 5. Example of a through mount setup.

Another option for mounting is a "Direct Mount" where the press is simply secured to the workbench with a lag screw.

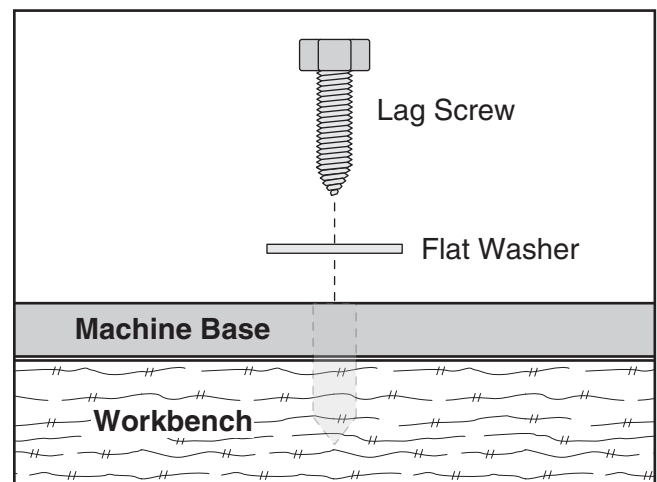
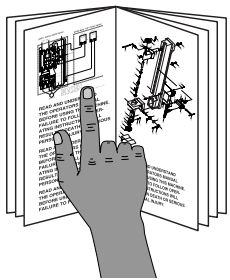


Figure 6. Example of a direct mount setup.



SECTION 3: OPERATIONS



!WARNING
To reduce the risk of serious injury when using this machine, read and understand this entire manual before beginning any operations.

!WARNING
Damage to your eyes, fingers, or feet could result from using this machine without proper protective gear. Always wear eye and face protection, leather gloves, and leather boots with extra toe protection.



!WARNING
Exceeding rated press capacity can damage the press, shatter a workpiece, or launch a press pin causing a severe impact injury. When the press has reached its maximum pressure or the pump lever becomes very stiff to operate, the press has reached its limit. Never use a cheater pipe for extra leverage.

NOTICE
If you have never used this type of machine or equipment before, WE STRONGLY RECOMMEND that you read books, review industry trade magazines, or get formal training before beginning any projects. Regardless of the content in this section, Grizzly Industrial will not be held liable for accidents caused by lack of training.

Operation Overview

This overview is not intended to be an exact step-by-step procedure, but rather a general example of a typical press operation to assist in an understanding of the controls discussed in this section.

In a typical press operation, the operator does the following:

1. Puts on the required personal safety equipment, and clears away all bystanders.
2. Inspects the workpiece and prepares it for press operations.
3. Retracts the hydraulic ram completely, and positions the bed so there is the shortest distance between the press pin and workpiece.
4. Verifies that both bed support pins are installed correctly and fully supporting the bed.
5. Places a catch basket under the press with the applicable padding to protect the part when it drops.
6. Positions the arbor plates to support the workpiece, and aligns the press pin or tooling on the part to be pressed.
7. Lowers the press ram to slightly preload the workpiece.
8. Examines the setup from different angles, and verifies that the press pin or tooling is maintaining alignment with the workpiece and the press ram.
9. While watching the pressure gauge, the operator completes the press operation.
10. Relieves the hydraulic pressure and allows the ram to return to the retracted position.



Controls

Figure 20 shows the hydraulic pump controls used for press operations. Review the list below to familiarise yourself with these controls.

- A. Hydraulic Reservoir.** Stores and cools hydraulic fluid.
- B. Pressure Gauge.** Indicates the hydraulic system pressure.
- C. Pump Lever.** Allows the operator the necessary leverage to build hydraulic pressure in the piston for pressing operations.
- D. Pressure Relief Valve.** This valve is factory set at a safe relief pressure and should not be re-adjusted.
- E. Control Valve.** When the valve is rotated clockwise to the closed position, the pump and piston are ready for press operations. When the valve is rotated counterclockwise to the open position, the pump and piston are relieved of pressure, and the press retracts to the unloaded position.

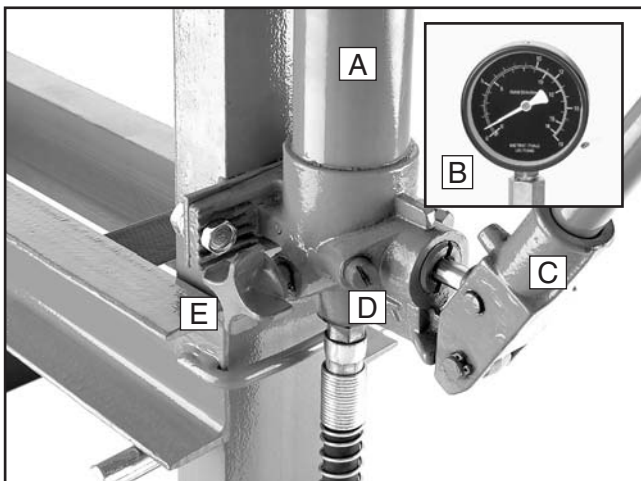


Figure 20. Pump controls.

Workpiece Inspection

Before using this hydraulic press, you must inspect the workpiece. This is not a comprehensive list but rather a list of common issues. It is up to you to address any additional special items required to prepare your workpiece for press operations. Not addressing the items below can lead to galled, seized, or broken housings. In some situations, ignoring just one of the listed items can lead to a workpiece or tooling being ejected from the press, which could cause severe injury or death.

- **Workpiece Strength:** Make sure that the workpiece material is designed to withstand the intended force the press will apply.
- **Workpiece Cleanliness:** Make sure that the workpiece is clean and that all burrs, grit, rust, or damage is removed from the pressing path. Often, light oiling on the components is beneficial to prevent galling or seizing.
- **Pressing Path:** Make sure that the direction of the component to be pressed on or off is correct and that the correct size of sleeve or arbor plate is used for support.
- **Retaining Mechanisms:** Make sure that all retaining rings, pins, or fasteners are removed, and no hidden secondary retainers are present.
- **Hidden Projectiles:** Some components house one or more springs. Make sure that the part to be dismantled with the press has the applicable caging system to catch the springs, should the workpiece slip or open up when the retaining ring is removed and the hydraulic pressure is relieved.
- **Special Fits:** Make sure that interference fits are correct before pressing a part on, and make sure that the applicable parts have been heated or chilled to the correct temperatures to avoid galling and seizing. Recognize that not all parts were designed to be pressed off. If in doubt, refer to the machinery repair manual for the part you are working on.



SECTION 4: ACCESSORIES

G8983—Tilting Roller Stand

Adjusts from 26" to 44", 0°-45°. 150 lb. capacity.

G8984—Single Roller Stand

Adjusts from 26 5/8" to 45". 250 lb. capacity.

G8985—5 Roller Stand

Adjusts from 26" to 44 5/8". 250 lb. capacity.

Support long workpieces during pressing operations with adjustable height super heavy-duty roller stands.



Figure 21. SHOP FOX® Roller Stands.

G7832—Arbor Press Stand

This heavy-duty stand features a 3 3/4" x 4" x 5" catch box, a 3 3/4" x 3 3/4" tray and cast iron table and base. Table is 36" high. Slots at 4 5/8", 3 7/8" and 2 3/8" centers. Threaded holes at 3 3/4", 5 1/2" and 7 1/2" centers.

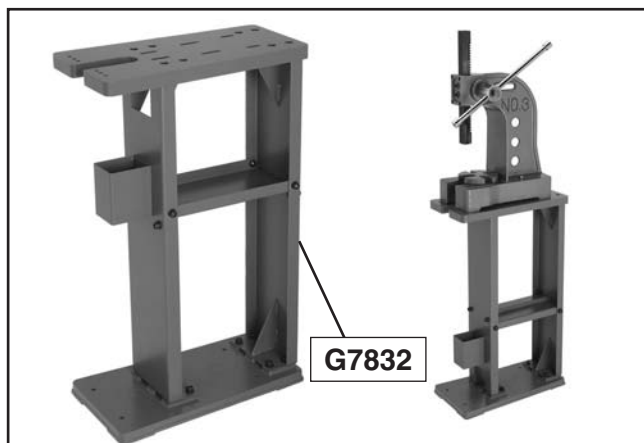


Figure 22. Arbor press stand (press not included).

Grizzly—Cast Iron Arbor Presses

Available in four powerful size configurations, these handsomely cast arbor presses take the effort out of stamping, seating, removing bearings, and other operations that require simple, well controlled mechanical pressure.

MODEL	CAPACITY	THROAT	WORKING HEIGHT	WEIGHT
G4017	1/2 Ton	3"	4"	20 lbs
G4018	1 Ton	3 3/4"	5"	29 lbs.
G4019	2 Ton	5"	7 3/4"	83 lbs.
G4020	3 Ton	7 1/2"	11 1/8"	135 lbs.

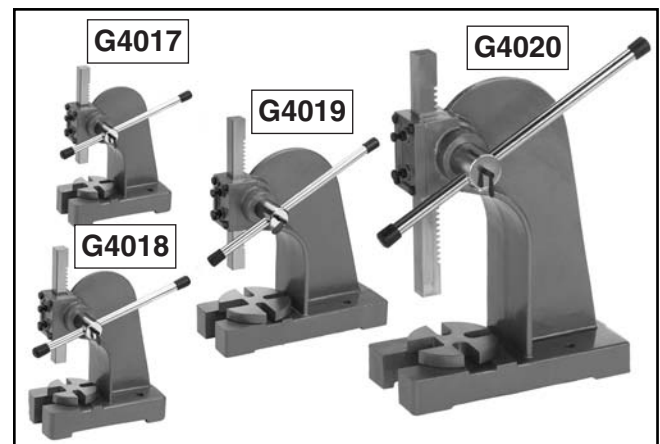


Figure 23. Grizzly arbor presses.

Grizzly—Number 2 and 3 Arbor Presses

These are Grizzly's top-of-the-line arbor presses made for heavy industrial application.

MODEL	CAPACITY	THROAT	WORKING HEIGHT	WEIGHT
H7830	2 Ton	5 3/4"	6 3/4"	70 lbs.
H7831	3 Ton	6 5/8"	11 3/4"	133 lbs.

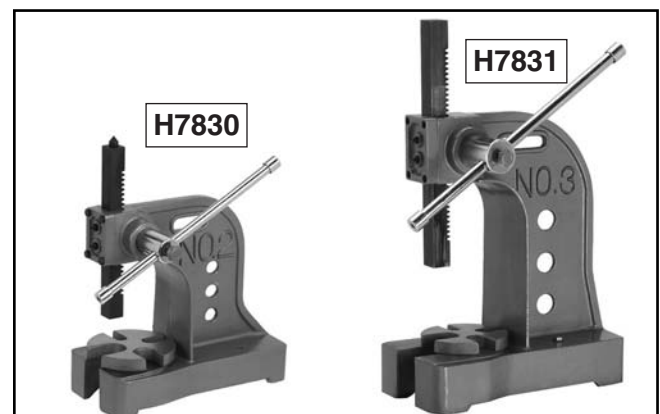


Figure 24. Industrial grade arbor presses.

Call 1-800-523-4777 To Order



SECTION 5: MAINTENANCE

⚠️ WARNING

Always relieve hydraulic pressure before performing maintenance. Failure to do this may result in serious personal injury.

Schedule

For optimum performance from your machine, follow this maintenance schedule, and refer to any specific instructions given in this section.

Daily Check:

- Loose mounting bolts.
- Damaged or leaking hydraulic seals.
- Frame cracks.
- Any other unsafe condition.

Weekly Maintenance:

- Workbench mounting bolts.

Every Three Years:

- Replace hydraulic fluid.

Cleaning

Cleaning the Model H6231Z is relatively easy. Vacuum excess metal chips or contaminants away from hydraulic seals and pivot pins. Wipe off the remaining dust with a dry or lightly oiled cloth.

Unpainted Cast Iron

Protect the unpainted metal surfaces on the bed and arbor plates by wiping them clean after every use.

Keep tooling and arbor plates rust-free with regular applications of products like G96® Gun Treatment, SLIPIT®, or Boeshield® T-9.

Lubrication

To lubricate the pump:

1. Using a hand-held oil gun, apply one or two drops of any standard machine oil or motor oil to all clevis pins, as shown in **Figure 25**.

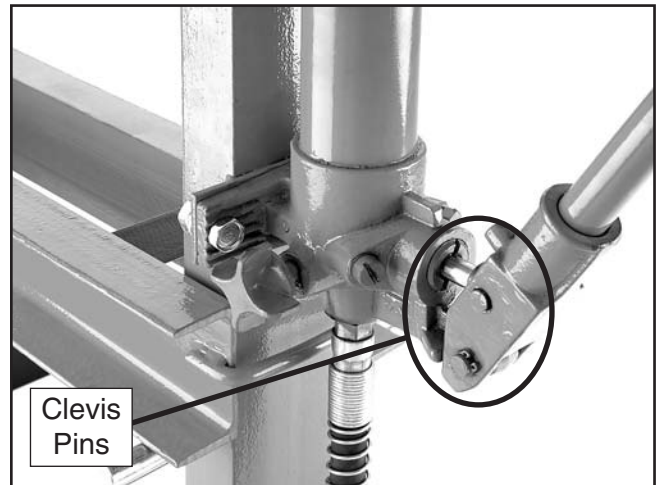


Figure 25. Clevis pins.

2. With the press completely retracted in the uppermost position, use a 14mm wrench to remove the breather fitting shown in **Figure 26**, and fill the pump reservoir with any standard hydraulic oil until it runs from the port. Reinstall the breather fitting.

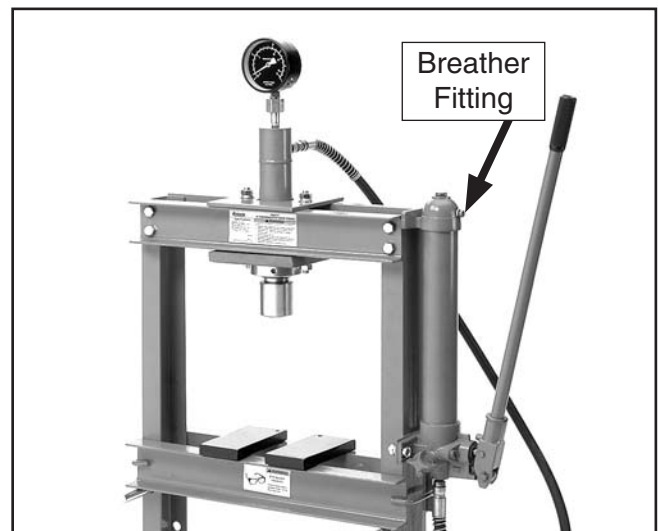


Figure 26. Breather fitting.

Model H6231Z (Mfg. since 1/10)



SECTION 6: SERVICE

Review the troubleshooting and procedures in this section to fix or adjust your machine if a problem develops. If you need replacement parts or you are unsure of your repair skills, then feel free to call our Technical Support at (570) 546-9663.

Troubleshooting

Operation

Piston is weak or does not reach rated pressing capacity.	<ol style="list-style-type: none"> 1. Pump reservoir is low on oil. 2. System has air bubbles trapped in pump. 3. Control valve is at fault. 4. Pump or piston is at fault. 	<ol style="list-style-type: none"> 1. Fill pump reservoir to correct oil level Page 18. 2. Bleed air out of the pump as outlined on Page 20. 3. Verify that the control valve is closed. 4. Replace or have pump or piston rebuilt or replaced.
System loses pressure under a load.	<ol style="list-style-type: none"> 1. Control valve is at fault. 2. Pump or piston is at fault. 	<ol style="list-style-type: none"> 1. Verify that the control valve is closed. 2. Replace or have pump or piston rebuilt or replaced.
Pump lever feels spongy during pumping, or lever has lost stroke.	<ol style="list-style-type: none"> 1. Pump reservoir is low on oil. 2. Air bubbles are trapped in pump. 3. Pump or piston is at fault. 	<ol style="list-style-type: none"> 1. Fill pump reservoir to correct oil level Page 18. 2. Bleed air out of pump as outlined on Page 20. 3. Replace or have pump or piston rebuilt or replaced.
Pump handle moves upward while press is under a load.	<ol style="list-style-type: none"> 1. Air bubbles are trapped in pump. 2. Pump or piston is at fault. 	<ol style="list-style-type: none"> 1. Bleed air out of pump as outlined on Page 20. 2. Replace or have pump or piston rebuilt or replaced.
Oil leaking from fill plug, or other seals.	<ol style="list-style-type: none"> 1. Pump reservoir is overfilled. 2. Hydraulic hose or fitting is leaking. 3. Pump or piston is at fault. 	<ol style="list-style-type: none"> 1. Remove the fill plug and drain-off excess oil (Page 18). 2. Replace hydraulic hose or fitting. 3. Replace or have pump or piston rebuilt or replaced.



Changing Hydraulic Oil

To maintain the hydraulic system for trouble-free service, every three years (or less under heavy use), drain and refill the reservoir on the hydraulic pump with any quality oil specified for use in hydraulic jacks.

To change the hydraulic oil:

1. Open the control valve (**Figure 27**), and allow the press and the piston to fully retract until the pressure gauge reads zero.

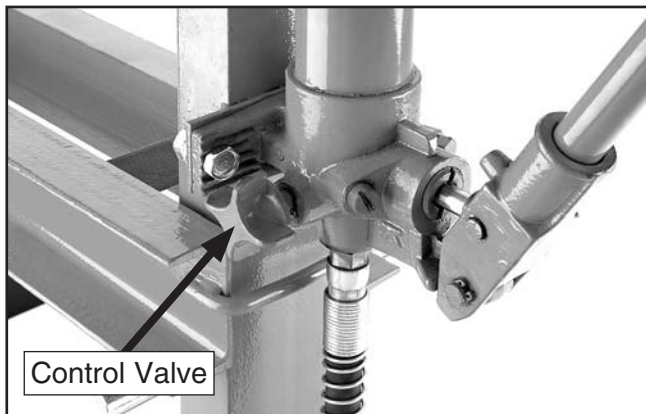


Figure 27. Control valve.

2. Close the breather knob and use a 17mm wrench to remove the two pump retaining bolts and the pump.
3. Using a 14mm wrench, remove the breather fitting shown in **Figure 28**. Next, invert the pump assembly and drain the hydraulic oil into a waste oil container.

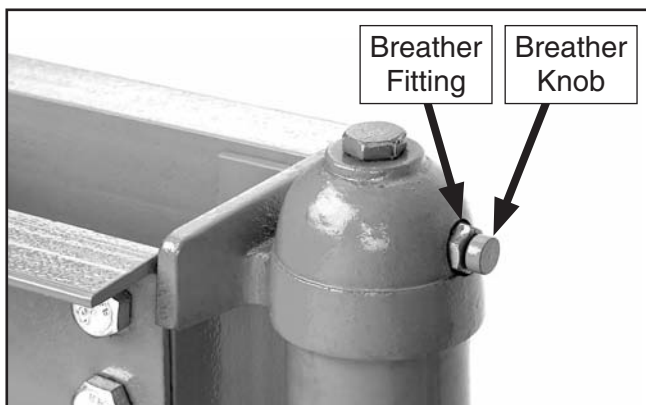


Figure 28. Breather fitting and knob.

4. Reinstall the pump and refill the pump reservoir with any quality hydraulic jack oil to the point where oil begins to pour out of the port.
5. Reinstall the breather fitting and open the breather knob completely.
6. Close the control valve and pump the handle to extend the press piston a few inches.
7. Open the control valve, and allow the press and the piston to fully retract once again until the pressure gauge reads zero.
8. Remove the breather fitting shown and top-off the hydraulic oil level as required to the point where oil begins to pour out of the port.
9. Wipe down all fittings and lines.
10. Reinstall the breather fitting leaving the breather knob fully open.

Pump Bleeding

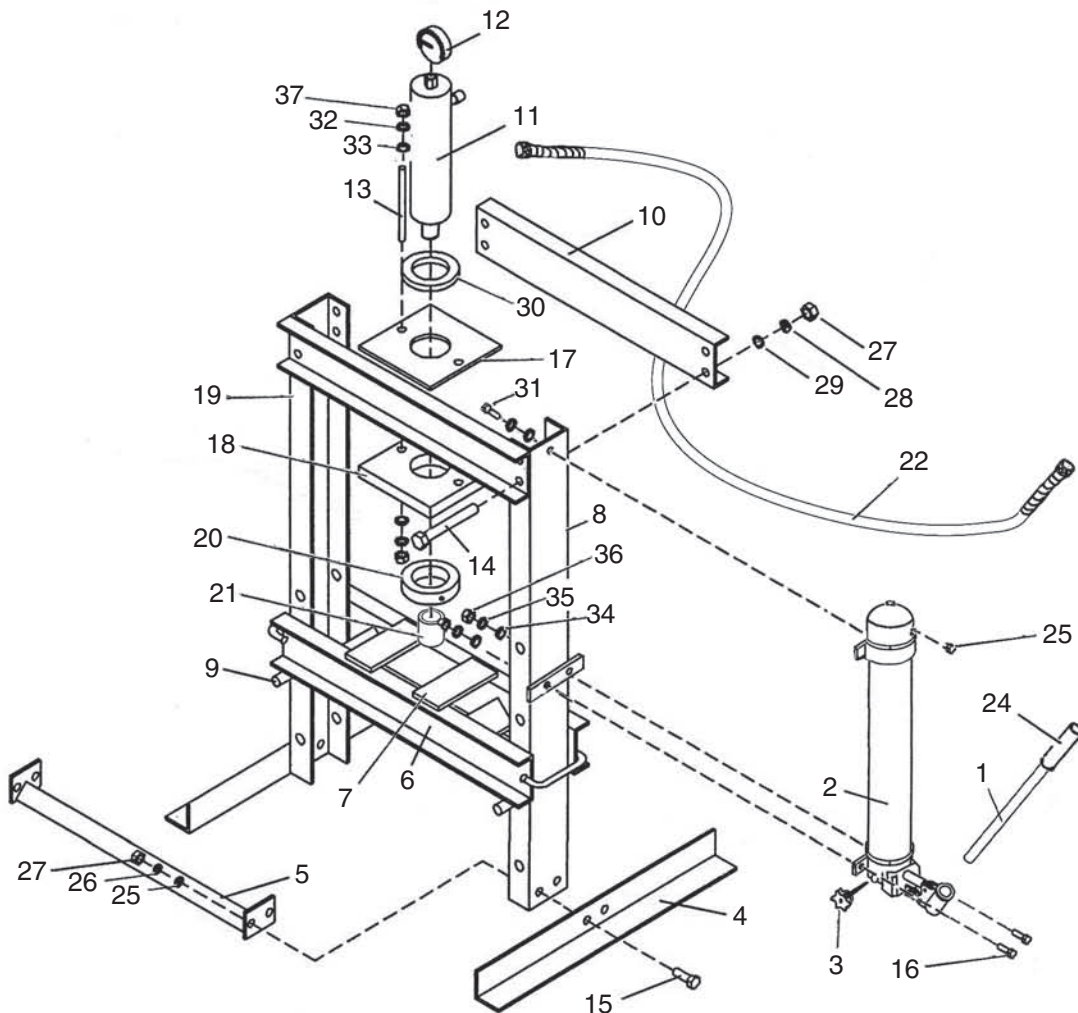
To bleed air from the pump:

1. Open the control valve completely and allow the return piston to fully retract.
2. Using a 14mm wrench, remove the breather fitting shown in **Figure 28**, and top-off the hydraulic oil level as required to the point where oil begins to pour out of the port.
3. With the control valve still open, pump the handle quickly with five or ten strokes.
4. Close the control valve, top off the oil level, and reinstall the breather fitting making sure that the breather knob is fully open.



SECTION 7: PARTS

Main Breakdown

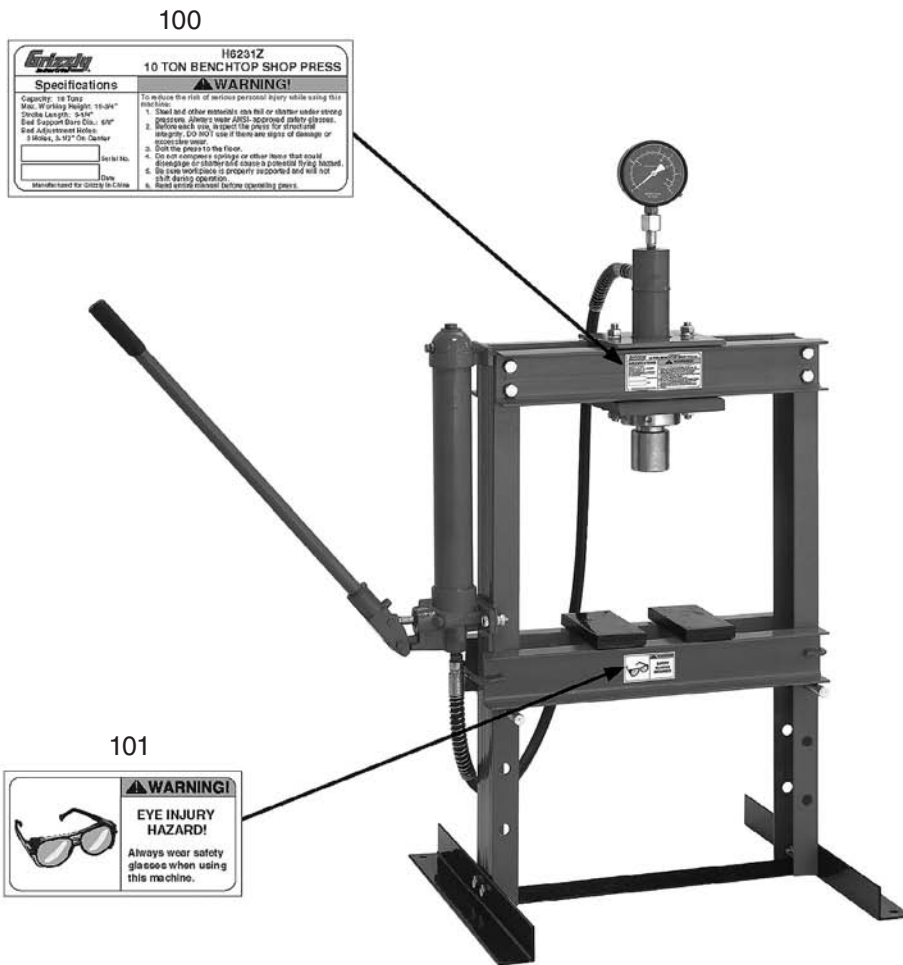


REF PART #	DESCRIPTION
1	PH6231Z001 PUMP LEVER W/GRIP
2	PH6231Z002 HYDRAULIC PUMP 10-TON
3	PH6231Z003 CONTROL VALVE KNOB BOLT
4	PH6231Z004 BASE LEG
5	PH6231Z005 BASE CROSS SUPPORT
6	PH6231Z006 BED
7	PH6231Z007 ARBOR PLATE
8	PH6231Z008 U-BEAM W/PUMP BRACKET
9	PH6231Z009 BED PIN
10	PH6231Z010 UPPER U-BEAM
11	PH6231Z011 PISTON ASSEMBLY 10-TON
12	PH6231Z012 HYDRAULIC PRESSURE GAUGE
13	PH6231Z013 STUD M12-1.75 X 150
14	PH6231Z014 HEX BOLT M12-1.75 x 110 C8.8
15	PB27M HEX BOLT M12-1.75 x 30
16	PB07M HEX BOLT M8-1.25 x 25
17	PH6231Z017 SUPPORT PLATE 8MM THICK
18	PH6231Z018 SUPPORT PLATE 20MM THICK

REF PART #	DESCRIPTION
19	PH6231Z019 U-BEAM W/O PUMP BRACKET
20	PH6231Z020 SPANNER RING 25MM THICK
21	PH6231Z021 PRESS PIN
22	PH6231Z022 HYDRAULIC HOSE
24	PH6231Z024 RUBBER GRIP
25	PW04M FLAT WASHER 10MM
26	PLW06M LOCK WASHER 10MM
27	PN09M HEX NUT M12-1.75
28	PLW05M LOCK WASHER 12MM
29	PW06M FLAT WASHER 12MM
30	PH6231Z030 SPANNER RING 15MM THICK
31	PB03M HEX BOLT M8-1.25 x 16
32	PLW05M LOCK WASHER 12MM
33	PW06M FLAT WASHER 12MM
34	PW01M FLAT WASHER 8MM
35	PLW04M LOCK WASHER 8MM
36	PN03M HEX NUT M8-1.25
37	PN09M HEX NUT M12-1.75



Label Placement



100

H6231Z 10 TON BENCHTOP SHOP PRESS	
Specifications Capacity: 10 Tons Max. Working Height: 18-3/4" Stroke Length: 5-1/4" Self-Centering Dies: 60° Self-Adjustment Rods: 2 Holes, 3/8" Dia. Center	WARNING! To reduce the risk of serious personal injury while using this machine: 1. Steel and other materials can hot or splatter under strong pressure. Always wear eye protection. Always use proper die alignment. DO NOT use if there are signs of damage or structural wear. 2. Do not press to the floor. 3. Do not compress springs or other items that could discharge or shatter and cause a potential flying hazard. 4. Do not work on a property accident and will not shift during operation. 5. Read and understand before operating press.
Serial No. _____ Date _____ Manufactured by Grizzly in China	

101

	WARNING! EYE INJURY HAZARD! Always wear safety glasses when using this machine.
--	---

REF	PART #	DESCRIPTION
100	PH6231Z100	MACHINE ID LABEL

REF	PART #	DESCRIPTION
101	PH6231Z101	SAFETY GLASSES LABEL

⚠️ WARNING

Safety labels warn about machine hazards and ways to prevent injury. The owner of this machine **MUST** maintain the original location and readability of the labels on the machine. If any label is removed or becomes unreadable, **REPLACE** that label before using the machine again. Contact Grizzly at (800) 523-4777 or www.grizzly.com to order new labels.





WARRANTY CARD

Name _____
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 Model # _____ Order # _____ Serial # _____

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1. How did you learn about us?

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 Card Deck Website Other:

2. Which of the following magazines do you subscribe to?

<input type="checkbox"/> Cabinetmaker & FDM	<input type="checkbox"/> Popular Science	<input type="checkbox"/> Wooden Boat
<input type="checkbox"/> Family Handyman	<input type="checkbox"/> Popular Woodworking	<input type="checkbox"/> Woodshop News
<input type="checkbox"/> Hand Loader	<input type="checkbox"/> Precision Shooter	<input type="checkbox"/> Woodsmith
<input type="checkbox"/> Handy	<input type="checkbox"/> Projects in Metal	<input type="checkbox"/> Woodwork
<input type="checkbox"/> Home Shop Machinist	<input type="checkbox"/> RC Modeler	<input type="checkbox"/> Woodworker West
<input type="checkbox"/> Journal of Light Cont.	<input type="checkbox"/> Rifle	<input type="checkbox"/> Woodworker's Journal
<input type="checkbox"/> Live Steam	<input type="checkbox"/> Shop Notes	<input type="checkbox"/> Other:
<input type="checkbox"/> Model Airplane News	<input type="checkbox"/> Shotgun News	
<input type="checkbox"/> Old House Journal	<input type="checkbox"/> Today's Homeowner	
<input type="checkbox"/> Popular Mechanics	<input type="checkbox"/> Wood	

3. What is your annual household income?

\$20,000-\$29,000 \$30,000-\$39,000 \$40,000-\$49,000
 \$50,000-\$59,000 \$60,000-\$69,000 \$70,000+

4. What is your age group?

20-29 30-39 40-49
 50-59 60-69 70+

5. How long have you been a woodworker/metalworker?

0-2 Years 2-8 Years 8-20 Years 20+ Years

6. How many of your machines or tools are Grizzly?

0-2 3-5 6-9 10+

7. Do you think your machine represents a good value? Yes No

8. Would you recommend Grizzly Industrial to a friend? Yes No

9. Would you allow us to use your name as a reference for Grizzly customers in your area?

Note: We never use names more than 3 times. Yes No

10. Comments: _____

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WARRANTY AND RETURNS

Grizzly Industrial, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special, or consequential damages arising from the use of our products.

To take advantage of this warranty, contact us by mail or phone and give us all the details. We will then issue you a "Return Number," which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.

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